DRAFT

Federal Aviation Administration

Aeronautical Information Management Modernization (AIMM)

Statement of Work (SOW)

Table of Contents

C.1 INTRODUCTION AND OVERVIEW

The FAA's Aeronautical Information Management Modernization (AIMM) program provides aviation users with digital Aeronautical Information (AI) that conforms to international standards and supports Next Generation Air Transportation System (NextGen) objectives. This acquisition includes provisions for AIMM Segment 2 (S2), Segment 3 (S3) and Segment 4 (S4) - all provide enhancements and new functionality to further improve and expand AIM services and AIMM efforts. The need for Segments 3 and 4 will be evaluated by the Government, as appropriate.

AIMM S2 is a software and integration effort which seeks to accomplish the following: 1) meet the requirements and needs of NextGen information management for Notices to Airmen (NOTAMs) as well as those of Airport Reference Data and Special Activity Airspace (SAA) and 2) fully leverage the System Wide Information Management (SWIM) Common Support Services infrastructure. The goal is to provide a common services platform to deliver AI services. The AIMM S2 product will:

1. Address the capability gap caused by the fact that there is no deployed, integrated, digital source of AI, airport, and airspace data for achieving shared situational awareness, including fusion with NOTAM data developed in AIMM Segment 1 (AIMM S1).
2. Provide information that will elevate National Airspace System (NAS) status and situational awareness, facilitating more rapid updates to airspace schedules and flight planning data.
3. Coordinate SAA use in concert with airport mapping and status.
4. Provide a central resource for critical information about airports, including airport mapping and status as well as supporting a variety of applications using this data. AIMM S2 will baseline and implement protocols for distributing information in an internationally accepted format known as the Aeronautical Information Exchange Model (AIXM).
5. Capture airport/reference and SAA data directly from the data source in a common digital format.
6. Use a Service-Oriented Architecture (SOA) platform that supports:
    a. Pub/Sub and request/reply services.
    b. Data Transformation.
    c. Efficient workflow of AIMM products and services.
    d. Adherence to business rules.
    e. Other common SOA services.
    f. Interface to SWIM enterprise infrastructure services.
7. Disseminate AI, including airport/reference data, SAA data, and NOTAMs to the entire NAS by embracing standards and protocols that support system interoperability and digital information sharing while leveraging the SWIM Common Support Services infrastructure and environment.
8. Configure AIMM products to be SWIM compliant.
9. Be architected to utilize a cloud computing capability.

C.1.1 Purpose

The purpose of this SOW is to define the effort required for the design, development, test and deployment of AIMM software products that meet all the requirements of the AIMM S2 System Specification Document (SSD) provided in Section J. This SOW also includes provisions for software maintenance, end user instruction, and supporting activities such as program management and system engineering.

Contract options, if exercised, will provide the means for the Contractor to perform, on a Task Order basis, Engineering Services as ordered by the Government.

The Contract Data Requirements List (CDRL) contained in Section J defines the work products and reports to be delivered to the Government resulting from the work defined in this SOW.

C. 2 APPLICABLE DOCUMENTS

The following specifications, handbooks, orders, and standards are applicable. Only the current approved version of these documents as of the contract date applies. In the event of a conflict between this SOW and any of the applicable documents cited below, the provisions of this SOW must apply. In the event that an applicable document should change after the contract award date and result in a change to programmatic, technical requirements, and/or design, the Contractor must submit an Engineering Change Proposal (ECP).

C.2.1 FAA Instructions, Orders, Specifications, and Standards

Document ID #	Title
FAA Order 8040.4	Safety Risk Management
FAA Order 1100.161	Air Traffic Safety Oversight
FAA Order 1370.82A	FAA Information Systems Security Program
FAA Order 1600.1E	Personnel Security Program
FAA-STD-026A	FAA Standard for Software Development for NAS; Incorporates ISO/IEC 12207: Information Technology- Software Life cycle Processes, and Software Quality Assurance Standard
FAA HF-STD-001	Human Factors Design Standard (HFDS)
FAA HF-STD-004	Requirements for a Human Factors Program
FAA-STD-064	Web Service Registration
FAA-STD-065	Web Service Description Documents
FAA-STD-063	XML Namespaces
FAA-STD-066	Web Service Taxonomies
FAA-STD-070	(draft) Web service Requirements Documents
Other	
FAA NAS SEM Version 3.1 OCT 2006	FAA System Engineering Manual (SEM) Version 3.1, Section 4.10.

Document ID #	Title
ATO Order JO 1000.37	Air Traffic Organization (ATO) Safety Management System
ATO-S 2008 Version 2.1	ATO Safety Management System Manual
ISS Policy, FAA Order 1370.82	Air Traffic Organization (ATO) Information System Security (ISS) Authorization Handbook
ATO-S 2008-12 Version 1.5	FAA Safety Risk Management Guidance for System Acquisition (SRMGSA)
NIST SP 800-37	Guide for Applying the Risk Management Framework to Federal Information Systems
MIL-HDBK-61A	Military Handbook Configuration Management Guide
ANSI/ASQC ISO-9001-2000	Quality Management Systems: Requirements
EIA-748, Rev. A need rev	Earned Value Management Systems
DODD 8500.1E	Information Assurance (IA)
NIST – Special Publication-800-34	Contingency Planning Guide for Information Systems
ISCP	Information System Contingency Plan
NIST – Special Publication – 800-18	Guide for Developing Security Plans for Information Technology Systems
Appendix III to OMB Circular No. A-130	Security of Federal Automated Information Resources
SRMGSA), December 2008	In accordance with Safety Risk Management Guidance for System Acquisitions
SWIM Governance Policies	Version 1.1
SWIM Governance Plan	Version 3.0
AMST & EPG	Acquisition Management Systems Test and Evaluation Process Guidelines

C.3 REQUIREMENTS

C.3.1 Program Management

The Contractor must establish and maintain an organization to efficiently and effectively execute the requirements of the contract. The Contractor's Program Management Organization must be responsive to Government program management requirements, control AIMM business and technical activity, ensure compliance with contract requirements, and effectively manage any subcontracts. The Contractor must assign a dedicated Program Manager (PM) to organize, plan, schedule, implement, control, analyze, and report on all elements of the contract. The PM must have sufficient authority to direct, execute, and control all elements of the program subject to governmental review and approval.

C.3.1.1 Program Management Plan

The Contractor must develop an integrated Program Management Plan (PMP). The PMP must integrate all functional areas (e.g., systems engineering, engineering data and specifications, software engineering, Configuration Management (CM), risk management, Quality Assurance (QA), integrated logistics support, etc.) and define the specific objectives to be accomplished for the successful execution of the program. The PMP must specify the work tasks at an overview level required to meet the objectives. The PMP must also discuss the staffing and other resources required to meet contract requirements.

The PMP must include the Contractor's CM, risk management, and QA plans and processes.

The PMP must include a Contract Work Breakdown Structure (CWBS) that is based on a logical and efficient sequence of tasks designed to accomplish the effort described in the contract. The CWBS must describe the work that will be accomplished and must facilitate management data collection and reporting. The CWBS must include a CWBS dictionary and CWBS index. The CWBS must align with the current FAA approved Work Breakdown Structure (WBS), as identified in the FAA's Acquisition System Toolset, but may be tailored to facilitate contract management under the requirements of this SOW. The Contractor must use the CWBS as the primary framework for contract planning, budgeting, reporting program cost and schedule status to the Government, and maintain the CWBS throughout the life of the contract. The Contractor must deliver the CWBS as Appendix A to the PMP. The Contractor must not modify the CWBS or associated definitions for any reporting elements identified in the CWBS without prior Contracting Officer (CO) approval.

CDRL M01 Program Management Plan (PMP)
CDRL M01 Appendix A – Contract Work Breakdown Structure (CWBS)

C.3.1.2 Meetings and Reviews

The Contractor must support status meetings, Program Management Reviews (PMRs), and formal design reviews/meetings.

C.3.1.2.1 Meeting Agenda and Minutes

The Contractor must prepare agendas, meeting minutes, action item lists, and presentation materials. The Contractor must track action items assigned during meetings until the disposition

of the action is mutually agreed to by the Contractor and the Government. Once the action has been completed by the responsible organization and validated by the Government, the action must be closed. The Contractor must maintain a history of all closed action items.

CDRL M02 Agenda, Meeting Minutes, Action Item list, and Presentation Material

C.3.1.2.2 Post Award Conference (PAC)

The Contractor must plan, support, and participate in a PAC as identified in Section F following contract award. The Contractor must be prepared to discuss issues and/or questions, such as:

1. Roles of the Contractor's contract management team members
2. The contract type, options, deliverables, and delivery schedules
3. Special contract clauses
4. Incentive features and procedures
5. Government Furnished Property (GFP), Government Furnished Information (GFI), or services, if applicable
6. Allowable and non-allowable costs, if appropriate
7. Contractor reporting requirements
8. Contractor's quality control system/procedures
9. Inspection and acceptance provisions
10. Invoicing and billing procedures
11. The Contractor's overall responsibilities
12. Critical milestones
13. The specifications and other requirements
14. The need for special technical directions
15. Waivers and deviations
16. Drawing/design approvals, if applicable
17. Manuals
18. Laboratory facilities, if applicable

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Material

C.3.1.2.3 Technical PAC

The Contractor must support and participate in a Technical PAC (TPAC) as identified in Section F, after contract award. The Contractor must demonstrate the ability to accomplish the contractual requirements for AIMM products to include (but not limited to):

1. Engineering and design reviews
2. Software development
3. SWIM Compliance
4. System testing
5. Quality
6. Deploying to the Cloud

The Contractor must, at a minimum, address the progress on development of the following at the TPAC:

1. Software Development Plan (SDP)
2. Software Release Plan
3. Contractor Master Test Plan (CMTP)
4. System Engineering Management Plan (SEMP)
5. Human Factors Program Plan (HFPP)

Upon award of CLIN 0002 (Option) the Contractor must plan, support and participate in a TPAC for S3.

Upon award of CLIN 0003 (Option) the Contract must plan, support and participate in a TPAC for S4.

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Material

C.3.1.2.4 Program Management Reviews (PMRs)

The Contractor must conduct, and administratively support, monthly PMRs to review the work being conducted. The Contractor must prepare and submit an agenda and minutes along with any action items assigned. For all PMRs, the CO may modify the meeting schedule to accommodate special program needs. The monthly PMR will include the status of Contractor activities toward development and a summary of findings and resolutions for technical reviews and any significant non-PMR meetings conducted during the PMR reporting period.

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Material

C.3.1.2.5 Technical Interchange Meetings (TIMs)

The Contractor must conduct TIMs as required. The agenda for the TIMs must be mutually agreed upon between the Contractor and Government. The TIMs will provide the working-level forum for the Contractor and the Government to work collaboratively to review alternatives, analyze data, and ultimately make decisions on the various technical issues.

The Contractor must participate in SWIM TIMs, usually held bimonthly, and provide presentation materials as requested.

The Contractor must support ad hoc meetings.

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Materials

C.3.1.2.6 Program Facility Support

The Contractor must provide the Government with access to an office at the Contractor's primary work location. The office must contain, at a minimum, one desk, one telephone, and internet access (4 lines). The Contractor must also provide the Government access to, or otherwise allow, facsimile and document reproduction.

The Contractor must provide teleconferencing capability as requested by the Government. The Contractor must provide facilities to meet attendance requirements for all conferences, meetings, reviews, and evaluations identified in this SOW.

C.3.1.3 Earned Value Management (EVM)

The Contractor must establish, maintain, and use an EVM System (EVMS) that complies with provisions provided in Section H. The EVMS must be used to plan and control costs; measure performance; and identify cost and schedule variances. The Contractor must use the same EVMS for all subcontractors. The Contractor must participate in a Government conducted Integrated Baseline Review (IBR) in accordance with Section F, following authorization to start work. The Contractor must prepare and submit a monthly Cost Performance Report (CPR) starting at the IBR and utilizing the EVMS along with a monthly written analysis that examines the actual prime and subcontractor(s) expenditures measured against the planned expenditures. The data used to generate performance information must also be used to develop a Contract Funds Status Report (CFSR) providing funding status and requirements. Additional guidance related to IBRs is provided in the FAA's IBR Guide at fast.faa.gov/docs/IBRGuide.doc.

CDRL M03 Cost Performance Report (CPR)
CDRL M04 Contract Funds Status Report (CFSR)

C.3.1.4 Integrated Master Schedule (IMS)

The Contractor must develop and maintain an IMS. The IMS must identify critical milestones (including all applicable support activities) for meeting program activities as defined in this SOW and Section F for the period of performance for this contract.

CDRL M05 Integrated Master Schedule (IMS)

C.3.1.5 Risk Management

The Contractor must implement a Risk and Opportunity Management System (ROMS) for the purpose of conducting risk control and opportunity capture for the AIMM S2 program to meet its technical, cost, and schedule objectives. Risk control must involve early identification and analysis of risks, continuous risk tracking and reassessment, early implementation of corrective actions, communication, documentation, and coordination.

The Contractor must identify, analyze, and prioritize risks and opportunities and develop recommended courses of action. In assessing strategic and technical risks or opportunities any interdependencies with other programs must be considered. Interdependencies must be documented in the risk/opportunity assessment submission described below.

The Contractor must develop and maintain a list identifying, analyzing, and classifying program risks/opportunities. Program risks must be classified using a 5x5 matrix for probability of occurrence and severity of impact, in accordance with the FAA System Engineering Manual (SEM), Section 4.10. The Contractor must develop risk mitigation plans for risks considered medium or high priority; and capture plans for opportunities.

The Contractor must provide the status of risks and opportunities at the monthly PMRs and in PMR presentation materials.

The Risk Management Program must be documented in the Risk Management section of the PMP.

C.3.1.6 System Integration Management

The Contractor must be responsible for developing, selecting, testing, integrating, and deploying the proposed developmental and/or Commercial-off-the-Shelf (COTS)/Non-development Item (NDI) software products as a system. The Contractor must function as a single-point of contact for program-level integration of the AIMM software. Program-level integration and schedule activities must include, but not be limited to, program management, technical reviews, interface management, testing, and coordination of deployment planning.

C.3.1.7 Contract Management

C.3.1.7.1 Data Management

The Contractor must establish, maintain, and provide the Government with access to a secure web based library with all documents (e.g., deliverables, correspondence, etc.) developed by the Contractor and all documents provided by the Government. At a minimum, the web-based Contractor library must include:

1. Copies of all correspondence related to this contract between the Contractor and the Government.
2. Documentation providing traceability and rationale for the Contractor's program decisions.
3. The latest internally controlled version of all specifications, drawings, databases, and software.
4. Copies of all briefings to the Government.
5. All CM documentation.
6. Site hardware and software inventory lists.
7. All CDRL documentation.

C.3.1.7.2 CDRL Delivery

The Contractor must use the FAA web-based system for the electronic delivery of all official CDRLs.

C.3.1.7.3 Commercial Product Management

The Contractor must develop a Commercial Product Management Plan to describe how the Contractor will manage commercial hardware, software and firmware products including Non-development Items (NDI) and GFP commercial products that are used in the AIMM products. The Contractor must establish and execute a Commercial Product Management Program based on the Commercial Product Management Plan.

CDRL M06 Commercial Product Management Plan (CPMP)

C.3.1.8 Quality Assurance (QA) Program

QA is applicable to all phases of the AIMM Program. In addition to the requirements in Section E, the Contractor must establish and maintain a QA program in accordance with ANSI/ASQC ISO-9001-2000.

The inspection requirements specifically set forth in this SOW and in Section E must become a part of the Contractor's overall QA program. The absence of Government inspection does not relieve the Contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. The Contractor must establish and maintain a QA program and must provide for the procedures and controls to ensure that all requirements of the contract are met.

The Contractor's QA Program must be documented in the QA section of the PMP.

C.3.2 System Engineering

C.3.2.1 System Engineering Management

The Contractor's System Engineering Management Program must be documented in the System Engineering Management Plan (SEMP).

CDRL E01 System Engineering Management Plan (SEMP)

C.3.2.2 System/Subsystem Specification (SSS)

The Contractor must analyze all the requirements provided in the AIMM S2 System Specification Document **(**SSD). The Contractor must identify the major functional subsystems of the system and, for each subsystem, must document the expanded requirements in the SSS. The Contractor must define and allocate the requirements as required and document them in the AIMM SSS.

The Contractor must use the Dynamic Object Orientated Requirements System (DOORS) tool, or an alternative approved by the FAA, to support requirements traceability between the SSS, the AIMM S2 SSD, and the Contractor's associated design documents. If an alternative to DOORS is approved, the Contractor must provide the Government with requirements in a DOORS compatible format for Government requirements management.

CDRL E02 System/Subsystem Specification (SSS), Volume I

C.3.2.2.1 Verification Requirements Traceability Matrix (VRTM)

The Contractor must develop a VRTM to document two-way traceability between the requirements of the AIMM S2 SSD and SSS. The Contractor must analyze the requirements of the AIMM SSS and include a verification method in the VRTM for each "must" requirement.

CDRL E02 System/Subsystem Specification (SSS), Volume II, Verification Requirements Traceability Matrix (VRTM)

C.3.2.2.2 Requirements Allocation Matrix (RAM)

The Contractor must perform a functional analysis of system requirements and allocate requirements to specific system Configuration Items (CIs). The Contractor must develop the RAM to document the association between the SSS requirements and system CIs.

CDRL E02 System/Subsystem Specification (SSS), Volume III, Requirements Allocation Matrix (RAM)

C.3.2.3 Engineering Reviews

The Contractor must conduct engineering reviews and demonstrate to the Government its understanding of the program at various stages in the development process. The reviews will be conducted to support the system software design and development phases and demonstrate the Contractor's readiness to proceed to the next stage.

C.3.2.3.1 System Requirements Review (SRR)

The Contractor must conduct an SRR for AIMM S2 to demonstrate:

1. An understanding of the Government requirements and the Government's intent with respect to this program.
2. Processes in place for software design and development activities.
3. Traceability of SSS requirements to the AIMM S2 SSD.
4. Processes in place for program SE activities.
5. Processes in place to track system requirements allocation relative to SE activities, software design, development activities.
6. An understanding of the SWIM SOA infrastructure services that the AIMM S2 software requires.
7. An approach for using cloud computing capability
8. Allocation of requirements to releases, if any.

The Contractor must conduct separate SRRs for S3 and S4 (Optional CLINs).

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Materials
CDRL E02 System/Subsystem Specification (SSS) – Volumes I, II and III

C.3.2.3.2 Preliminary Design Review (PDR)

The Contractor must conduct a PDR for each AIMM S2 release to demonstrate:

1. Processes used to arrive at functional and performance requirements for each CI are rigorous and complete.
2. An audit trail of changes from the SRR documents
3. A satisfactory preliminary design for implementing system requirements.
4. All requirements allocated and traced to the Computer Software Component (CSC) level.
5. Identification of all open issues and a plan for closing each issue.
6. Identification of all technical and programmatic high-risk areas.
7. Complete and adequate plan for software testing.
8. System architecture, overall design approach, and CI structure are sufficiently mature to begin detail design.
9. Update on use of cloud computing capability

The PDR must, at a minimum, address the progress of the following:

1. SSS – Volumes I, II and III
2. System/Subsystem Design Document (SSDD)
3. Software Design Description (SDD)
4. Hardware Description Document (HDD)
5. Web Services Description Document (WSDD)
6. Software Requirements Specification (SRS)
7. SWIM compliance
8. Safety (Safety Hazard Analysis)
9. Security (System Security Plan (SSP), Security Standard Operating Procedures (SSOPs) and Information System Contingency Plan (ISCP))
10. System Characterization Document
11. CMTP
12. HFPP
13. End User Instruction Manual
14. Software (SW) and Hardware (HW) maintenance philosophy

The Contractor must also provide information on other design-related activities as required by this contract and as directed by the Government.

The Contractor must complete the PDR, including disposition of all action items, prior to starting the development phase, unless the Government provides explicit, written approval in advance excusing the Contractor from doing so. Upon completion of the PDR, Contractor modifications to the SSS must be made only with Government approval.

The Contractor must conduct a PDR for each S3 and S4 (Optional CLINs).

CDRL M02	**Agenda, Meeting Minutes, Action Item List, and Presentation Materials**
CDRL E02	**SSS – Volume I**
CDRL E02	**SSS – Volume II, Verification Requirements Traceability Matrix (VRTM)**
CDRL E02	**SSS – Volume III, Requirements Allocation Matrix (RAM)**
CDRL E03	**System/Subsystem Design Document (SSDD)**
CDRL E04	**Software Requirements Specification (SRS)**
CDRL E05	**Software Design Description (SDD)**

CDRL E06 Hardware Description Document (HDD)
CDRL E15 Web Services Description Document (WSDD)
CDRL E16 Web Services Requirements Document (WSRD)
CDRL E17 Web Services Design Language (WSDL)
CDRL S01 System Security Plan (SSP)
CDRL S03 Information System Contingency Plan (ISCP)
CDRL S04 System Characterization Document (SCD)
CDRL S05 Security Standard Operating Procedures (SSOP)
CDRL SF05 System Hazard Analysis (SHA)

C.3.2.3.3 Detailed Design Review (DDR)

The Contractor must recommend to the FAA a series of TIMs to provide a design review of each AIMM Computer Software Configuration Item (CSCI), including a discussion of all issues. The Contractor must be prepared to summarize these issues and TIM results at DDR.

The Contractor must also provide updates of all design and engineering documents, Security, Safety, Training, and other Plans as required by this Contract at the DDR.

The Contractor must conduct a DDR for each S3 and S4 (Optional CLINs).

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Materials
CDRL E02 System/Segment Specification (SSS) – Volume I
CDRL E03 System/Subsystem Design Document (SSDD)
CDRL E04 Software Requirements Specification (SRS)
CDRL E05 Software Design Description (SDD)
CDRL E15 Web Services Description Document (WSDD)
CDRL E17 Web Services Design Language (WSDL)
CDRL HF02 Graphic User Interface (GUI) Design Document

C.3.2.4 Configuration Management (CM)

The Contractor must establish, within its organization, the practices, policies, and procedures for implementing the requirements of a CM program using best commercial practices.

C.3.2.4.1 Configuration Planning and Management Requirements

The Contractor must establish and maintain a CM program to manage all software, documentation, physical media, and incidental hardware (if required) pertaining to the AIMM program.

The Contractor's CM program must be documented in the CM section of the PMP.

C.3.2.4.2 Configuration Items (CIs)

For CM purposes, CIs include all hardware and software items that comprise the configuration baselines. For hardware CIs (HWCIs), the indenture levels must be defined by the Contractor in a top-down, break-down order to the Lowest Replaceable Unit (LRU), and include all parts including Government specification or vendor-specific parts. Non-development items (NDI) used in the AIMM S2 software must be annotated as NDI. COTS and modified COTS items

used in the AIMM S2 software must be annotated as such. Developed Computer Software Configuration Items (CSCIs) should be identified similarly, identifying the flow down from top-level CSCIs to CSCs. Any software NDI must be similarly annotated in the top-down listing. These documents must be maintained by the Contractor through the development life-cycle, and must be made available for use during the configuration audits.

C.3.2.4.3 Configuration Control

C.3.2.4.3.1 Engineering Change Proposals

The Contractor must prepare Class I Engineering Change Proposals (ECPs) when a proposed baseline change affects any CI(s) form, fit, and function, corrects a deficiency, or impacts logistics documentation or support.

CDRL C01 Engineering Change Proposal (ECP)

C.3.2.4.3.2 Request for Deviation (RFD)

The Contractor must prepare a RFD for Government review and approval/disapproval any time the Contractor wishes to request temporary relief from a requirement of any functional, allocated, or product configuration documentation.

No items that incorporate a known departure from requirements must be delivered by the Contractor for acceptance by the Government, unless the Government has approved a RFD. Authorized deviations are a temporary departure from requirements and do not constitute a change to the Product Baseline (PBL) documentation. Deviations do not apply to software code listings. An ECP must be processed when it is determined that a change should be permanent.

CDRL C02 Request for Deviation (RFD)

C.3.2.4.3.3 Revisions to Engineering Change Proposals/Requests for Deviation

Revisions made to ECPs/RFDs must be designated as Rev1, Rev2, etc. No revisions to ECPs/RFDs must add new requirements to the original submission. No revisions to ECPs/RFDs will be permitted after they have been approved.

C.3.2.4.3.4 Notice of Revision (NOR)

The Contractor must prepare a Notice of Revision (NOR) concurrent with a Class I ECP for each specification that would require revision if the ECP were approved. The NOR must also be used to describe where and how the specification change will be made, provide instructions for pen and ink changes for minor changes or provide replacement specification pages.

A NOR must be used to describe the exact change(s) to be made to each drawing, associated list, or other affected document. NORs must be prepared in a format containing information required to accurately describe and implement the change. A NOR must be an ancillary document to the ECP which conveys the specific change to a specific document. A NOR is required when: (1) the ECP is proposed by the Government (in the role of tasking or performing activity); (2) the party proposing the ECP is not the Current Document Change Authority (CDCA) of the document being changed by the ECP; or (3) the party proposing the ECP is not responsible for pricing logistics support impact.

CDRL C03 Notice of Revision (NOR)

C.3.2.4.4 Configuration Audits

The Contractor must prepare a Configuration Audit Plan using MIL-HDBK-61A as guidance. A Functional Configuration Audit (FCA)/Physical Configuration Audit (PCA) must be performed on the software at the Contractor's facility in support of Government Acceptance. The Contractor must support the conduct of Government Configuration Audits. Audits must be performed to validate that all CIs have been developed in accordance with the functional and performance requirements of the specification(s) and that they accurately reflect the production configuration design documentation. The Contractor must report the FCA/PCA results in the Configuration Audit Report using MIL-HDBK-61A as guidance. The satisfactory completion of the audits, as approved by the Government, must establish the product baseline.

A list of all approved and in-process changes against HW and SW and documentation must be presented to the audit team at the beginning of the audit period.

CDRL C04 FCA/PCA Configuration Audit Plan
CDRL C05 FCA/PCA Configuration Audit Report

C.3.2.5 Human Factors Engineering (HFE)

The Contractor must develop the AIMM software in accordance with HFE best practices and standards, including the Human Factors Design Standard (HFDS) (FAA HF-STD-001). To ensure the AIMM S2 services are developed following the FAA HFDS, the Contractor must develop a Human Factors Program Plan (HFPP). The HFPP must accommodate the HFDS and the Requirements for a Human Factors Program as defined in FAA HF-STD-004. In case of conflicting requirements between the AIMM S2 SSD, HF-STD-004, and the HFDS, the HFDS must have precedence.

The Contractor must include HFE as an element of program management activities such as PMRs, design reviews, software/system demonstrations, and TIMs.

The Contractor must conduct Human in the Loop (HITL) exercises as identified in the approved HFPP. The goal of the HITL must be to ensure the AIMM S2 services meet the operational needs of the AIMM Stakeholders.

CDRL HF01 Human Factors Program Plan

C.3.2.6 Security

The Contractor must comply with the Information System Security Program ,FAA Order 1370.82A (as amended), and ISS Policy, FAA Order 1370.82, the Air Traffic Organization (ATO) Information System Security (ISS) Authorization Handbook (latest revision).

The Contractor must support development of the AIMM Security Authorization Package to ensure the AIMM S2 software successfully passes the certification and authorization processes as directed by the Government.

The AIMM security program must be documented in the AIMM System Security Plan (SSP).

The Contractor must mitigate all risks as directed by the Government. The SSP must apply to all phases of the program. The Contractor must meet all requirements of AIMM S2 SSD.

The Contractor must comply with the AIMM ISS Program managed and operated by the FAA including compliance with industry-standard security engineering principles and a system development lifecycle methodology utilizing information security considerations. Security activities must be conducted in accordance with Government information security requirements as defined in Section C.2.0 (Applicable Documents). The Contractor must support required Government security authorization activities for the AIMM software. The Contractor must provide the necessary information to support the Government in updating security authorization documents, as well as annual security assessment documents in accordance with guidance and current templates provided by the FAA Information System Security Program Office.

The Contractor must support the Government in conducting risk assessments, conducting contingency/disaster recovery planning and testing, and security testing and evaluation in accordance with the requirements of the FAA ISS Program. The Contractor must also support the Government by responding to the risk identified by the risk assessment.

The Contractor must ensure that appropriate documentation is provided describing the functional properties of the security controls employed within the information system with sufficient detail to permit analysis and testing of the controls. The Contractor must support the development and implementation of other security related documentation as required. The Contractor must develop and submit to Government, for approval, Security Standard Operating Procedures (SSOP), in accordance with the requirements established by the FAA Information System Security Program.

The Contractor must develop and deliver the Information System Contingency Plan (ISCP). The ISCP must identify the system's concept of operations, essential resources and points of contact (POC), and processes and procedures to follow in the event of a major system outage. This ISCP is based on National Institute of Standards and Technology (NIST) Special Publication 800-34 Contingency Planning Guide for Information Technology Systems.

The Contractor must develop and deliver the System Characterization Document (SCD). The SCD must document the system description including, the system overview and mission, system architecture, hardware and software, internal and external connectivity, and system data/information types, sensitivity, and criticality.

Security testing must be conducted as part of the overall test program. Security testing must be addressed in the Test Plan, Test Procedures and Test Report for applicable tests.

The Contractor must conduct annual ISCP testing as required by the Office of Management and Budget (OMB) and FISMA. The Contractor must document the results of ISCP testing in the ISCP Test Plan and Results Report.

CDRL S01	**System Security Plan (SSP)**
CDRL S02	**Information System Contingency Plan (ISCP) Test Plan and Results Report**
CDRL S03	**Information System Contingency Plan (ISCP)**
CDRL S04	**System Characterization Document (SCD)**

CDRL S05 Security Standard Operating Procedures (SSOP)

C.3.2.6.1 Security Directive Compliance

The Contractor must provide security in accordance with FAA Order 1370.82A, *FAA Information Systems Security Program*. The system development process must be guided by the following documents: Appendix III to OMB Circular No. A-130, *Security of Federal Automated Information Resources*; FAA Order 1600.1E, *Personnel Security Program*; and the NIST Special Publication 800-18, *Guide for Developing Security Plans for Information Technology Systems.*

C.3.2.7 System Safety

The Contractor must develop and execute a system safety program in accordance with the Safety Risk Management Guidance for System Acquisitions (SRMGSA), dated December 2008, and the System Safety Program Plan (SSPP), as approved by the FAA. The Contractor SSPP must be in agreement with the FAA AIMM Program Safety Plan (PSP). The primary objective of the System Safety Program must be to identify, evaluate, and eliminate or control hazards to the NAS to a level acceptable to the FAA throughout the AIMM program's life cycle. The Contractor must use the FAA provided Preliminary Hazard Analysis (PHA) as the initial set of identified hazards for the System Safety Program. This objective must be accomplished through the execution of a disciplined SE-based methodology to achieve Safety Risk Management (SRM) IAW FAA Order 8040.4.

The Contractor must utilize the FAA System Safety Handbook and the FAA ATO Safety Management System (SMS) Manual as guidance. The SMS integrates current FAA safety related operational policies, processes and procedures as well as introduces new elements necessary for a system approach to managing the safety risk of providing ATC and navigation services. When evaluating risk, the 5-by-5 Risk Matrix in the SMS Manual must be used.

The Contractor must prepare a SSPP to document in detail how the total system safety program will be conducted. Furthermore, the Contractor must:

1. Develop and deliver a Subsystem Hazard Analysis (SSHA).
2. Develop and deliver System Hazard Analysis (SHA).
3. Develop and deliver an Operating and Support Hazard Analysis (O&SHA).
4. Develop and deliver a System Safety Assessment Report (SSAR).
5. Provide status of identified hazards as required that include the status of validation and verifications of safety requirements.
6. Provide either written or oral status of the safety program at program management reviews as required and present Hazard Tracking and Incident Analysis data.
7. Support and participate in system safety working groups as required or as requested by the FAA.

CDRL SF01 System Safety Program Plan (SSPP)
CDRL SF02 Subsystem Hazard Analysis (SSHA)
CDRL SF03 Operating & Support Hazard Analysis (O&SHA)
CDRL SF04 System Safety Assessment Report (SSAR)
CDRL SF05 System Hazard Analysis (SHA)
CDRL SF06 Safety Requirements Verification Tracking List (SRVT)

CDRL SF07 Supplemental Hazard Analysis

C.3.3 System Architecture

The Contractor must design a system architecture that meets the requirements of the AIMM S2 SSD contained in Section J. The system architecture must be documented in the SSDD and clearly identify major hardware and software components as well as necessary personnel procedures.

CDRL E03 System/Subsystem Design Document (SSDD)

C.3.4 System Design and Development

The Contractor must design and develop an open, standards-based system that meets the requirements of the AIMM S2 SSD.

C.3.4.1 Software Engineering Management

The Contractor must establish and maintain a software engineering activity during the design and development of the AIMM software. The Contactor must document their software engineering methodology in the Software Development Plan (SDP).

The Contractor must hold bi-monthly software status and software design meetings commencing thirty (30) days after PDR. Material presented at these reviews/meetings must be presented in sufficient detail to ensure that the software development process, build allocations, release planning, testing and integration are in accordance with AIMM requirements.

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Materials

C.3.4.2 Software Requirements Specification (SRS)

The Contractor must develop an SRS as appropriate, for each CSCI. The SRSs must list every requirement allocated to the CSCI. The Contractor must document two-way traceability between the SSS and SRSs.

CDRL E04 Software Requirements Specification (SRS)

C.3.4.3 Software Design

The Contractor must document the software design in the Software Design Description (SDD).

The design documentation must identify all cases where a COTS/NDI product is used as an integral part of the software architecture, either as a CSCI or within a CSCI. The design documentation must maintain traceability between COTS/NDI usage and the requirements. When using commercial products, including operating systems and compilers, the Contractor must ensure openness of the design and implementation by using, to the maximum extent possible, only those features or attributes that comply with industry-approved standards. The design documentation must describe any planned exceptions to these standards in the design or implementation of the system. Exceptions, if any, must be presented and reviewed at software status meetings, documented in the detailed design, and submitted for Government approval.

The Contractor must design and develop the AIMM software in accordance with the following FAA documents to ensure SWIM compliance:

1. SWIM Governance Policies, Version 1.1
2. SWIM Governance Plan, Version 3.0

Additional SWIM governing documents can be found on the following FAA website: www.swim.faa.gov

CDRL E05 Software Design Description (SDD)

C.3.4.3.1 S2 Prototype Software

The AIMM S2 prototype software will be provided as Government Furnished Information (GFI). Contractor use of the AIMM S2 prototype software, in whole or in part, must meet the standards defined in both the AIMM S2 SSD and the Government approved SDP for newly developed software.

C.3.4.4 Hardware Definition

The Contractor must analyze the AIMM S2 requirements provided in the AIMM S2 SSD along with any Government provided AIMM S2 platform and cloud computing capability, and identify additional hardware, if any, required for implementation. The Contractor must, for any hardware required, identify appropriate HWCIs, and identify those in the SSDD. The Government anticipates all required hardware being commercially available.

The Contractor must identify and describe the purpose of all HWCIs at the PDR. The analysis must include a schedule for when the items must be procured and delivered to meet overall schedule requirements.

The detailed description of the AIMM S2 hardware must be provided in the Hardware Description Document (HDD).

CDRL E06 Hardware Description Document (HDD)

C.3.4.5 Software Development

The Contractor must develop a Software Development Plan (SDP). The SDP must include processes, methodologies, build strategies, and measurements to be used in conducting software development activities leading to system test. The Contractor must include processes for ensuring the NAS Services Registry/Repository (NSRR) Governance is followed and NSRR checklists are completed. Direction for these is included in the SWIM compliance documents referenced in C.3.4.3.

The Contractor must develop the AIMM S2 software in accordance with the Government-approved SDP.

The Contractor must provide software engineering and software management support as described in the Government-approved SDP.

CDRL E07 Software Development Plan (SDP)

C.3.4.5.1 Software Releases

The Contractor must develop and maintain a Software Release Plan, to include a software release schedule, throughout the duration of the contract. The software release schedule must be approved by the Government.

The Contractor must recommend, for Government approval, well-defined software releases for each AIMM Segment, as appropriate. The software releases must consist of logical capabilities allocated by the Contractor to satisfy the AIMM S2 SSD requirements, and may consist of one or more builds. Releases must incorporate new functionality, maintenance fixes, re-engineering efforts, and must be distributed as complete installations or as patches.

CDRL E08 Software Release Plan

C.3.4.5.2 Software Version Description (SVD)

The Contractor must develop a SVD for each software release to be delivered to the Government. The SVD must completely describe the software.

CDRL E09 Software Version Description (SVD)

C.3.4.5.3 System Operator Manual (SOM)

The Contractor must develop a SOM. The SOM must provide system users with instructions sufficient to install, operate, monitor and troubleshoot the AIMM S2 system. Instructions must cover all of the systems and subsystems, developed code and COTS software. Topics that must be covered include, but are not limited to, system diagnostics, problem handling procedures and aspects of software maintenance such as processes required for modification of system configuration files and installation of operating system patches. The Contractor must update the SOM to reflect changes to the operational baseline when necessary.

CDRL E10 System Operator Manual (SOM)

C.3.5 System Test and Evaluation

C.3.5.1 Contractor Master Test Plan (CMTP)

The Contractor must develop and implement an integrated test and evaluation program for the AIMM S2 capability. The Contractor must designate a Test Manager who will be responsible for conduct of the AIMM S2 Test Program. The Contractor must provide facilities and equipment required for successful completion of all required Contractor conducted tests. The Contractor must document the integrated test and evaluation program in the CMTP. The Contractor must use the Acquisition Management System Test & Evaluation Process Guidelines (AMST&EPG) as guidance. The Contractor must develop, and deliver for approval, test plans, procedures and reports to be used in the formal test program in accordance with the Government approved CMTP. The test program must verify that the developed software, COTS, hardware, and appropriate GFE/GFI meet all requirements, as stated in the AIMM SSS. The Contractor must maintain the CMTP, which must serve as the overall test control document for the Contractor's test program.

The Contractor must utilize a Contractor recommended, Government-approved automated requirements management tool for maintaining the VRTM. The Contractor must ensure that the VRTM identifies verification methods for all SSS requirements. The Contractor must provide Government-approved personnel with remote login access to these tools.

The Contractor must allocate sufficient time to ensure there are successful dry runs of all formal test procedures to minimize time required for Government observation of formal tests. All test procedures must be repeatable to be considered valid. The Contractor must develop an integrated test schedule that includes informal development testing, string testing, software and system integration testing, and Human-Computer Interface (HCI) demonstration/testing. The Contractor's test schedule must include formal tests for Vulnerability Scanning and Security. The schedule must also include all phases of Development Testing, including Factory Acceptance Test (FAT), Installation and Integration (I&I) Testing, Key Site Acceptance Testing (KSAT), System Acceptance Test (SAT), and support for Government Operational Testing (OT).

The Contractor must integrate test schedules in the program's IMS. The Government reserves the right to review Contractor testing during any test phase. The Contractor must have equipment, space, and personnel sufficient to perform FAT. The Contractor must coordinate testing to be performed, and ensure that there is minimal redundancy of effort and data. The Contractor has the responsibility for integration, control, and coordination of Contractor testing in support of Government testing.

The Contractor must notify the Government of formal test events at least fourteen (14) calendar days prior to the start of each test. Contractor-proposed test tools, documentation, and test-support hardware and software must be certified prior to the start of testing.

CDRL T01 Contractor Master Test Plan (CMTP)

C.3.5.2 Software Defect Management

The Contractor must develop and maintain a database for submitting, tracking, reporting, and maintaining records on Program Trouble Reports (PTRs) for each identified software defect. These PTRs will alert both the Government and the Contractor to problems from initiation to final corrective action and must apply to all phases of testing. The Contractor's PTR database must be defined in the CMTP, and must support all AIMM S2 test and evaluation activities. The Contractor must use this database for tracking problems associated with any system, equipment, software, or firmware that has been placed under formal configuration control. The Contractor must provide Government personnel with remote access to the database and provide status reports at the request of the Government.

The Contractor must submit the planned corrective action for each problem and identify the proposed regression testing or future modification(s) to the testing program required to validate the successful corrective action. If a component fails during test, the Contractor must perform failure analysis to identify the cause of failure. Failed steps, with or without associated PTRs, must be explained to the satisfaction of the Government. Anomalies such as GFP failures that interrupt an end-to-end run of the test must be jointly analyzed by the Contractor and the Government to determine a recovery plan. The Contractor is responsible for any corrective

actions necessary to ensure full specification compliance. The Contractor must complete repairs or rework prior to submission for regression testing.

The Contractor's corrective action process must ensure that detected problems are promptly reported, action is initiated, resolution is achieved, status is tracked and reported, and records of the problem(s) are maintained for the period of the contract.

C.3.5.3 Test Environment

As approved by the Government, the Contractor must establish and maintain a test environment to support development activities. The Contractor must provide all necessary test equipment, data reduction software tools, test scenarios, test library, and technical support personnel to support testing. The test environment must support interface to actual or simulated NAS elements for all interfaces required for the AIMM S2 software.

The Contractor must use the test environment to evaluate, demonstrate, select, and integrate AIMM S2 design elements. In addition, the Contractor must use the test environment for the testing of COTS/NDI products for compatibility, compliance, and conformance with the functional and performance requirements of the AIMM S2 SSS. The test environment must replicate all delivered system configurations and capabilities.

C.3.5.3.1 Test Equipment

The Contractor must be responsible for assuring that necessary test equipment is available when needed, properly calibrated, and fully operational in order to support testing. Test equipment used by the Contractor must be standard commercial equipment in compliance with applicable FAA standards and must not be modified without prior written approval of the Government. Purchase or lease of proposed test equipment must be approved by the Government.

C.3.5.4 Test Working Group(s)

The Contractor must conduct Test Working Group meetings with Government and other Contractor test teams, to focus on test planning, status, documentation, requirements, and any issues pertaining to test. The Contractor must prepare agendas, meeting minutes, and presentations. The Contractor must conduct and participate in Test Working Group meetings as required for all phases of the contract.

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Materials

C.3.5.5 Test Readiness Review (TRR)

The Contractor must conduct a TRR prior to each formal Test (FAT, SAT and KSAT). The TRR must consist of the following:

1. Contractor presentation of documentation showing that all entrance criteria have been met and a formal request for Government approval to proceed with testing.
2. Government assessment of the Contractor's readiness and formal approval to proceed with testing.

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Materials

C.3.5.6 SWIM Test

The Contractor must conduct a formal test for each AIM service in the NSSR prior to, but no later than, FAT. The Contractor must provide a Test Report resulting from executing SWIM provided test profiles in Actional Team Server for each AIM Service identified in the NSRR. The Contractor must include this testing in the CMTP and the Program IMS.

CDRL T04 Test Report - SWIM

C.3.5.7 Factory Acceptance Test

The Contractor must develop a FAT Plan, FAT Procedures and FAT Test Report for each planned software release. The Contractor FAT plan must document how the Contractor will verify the system's ability to satisfy all of the requirements of the AIMM SSS (allocated to a specific release) in accordance with the Government-approved AIMM VRTM. The Government will monitor all Contractor FAT activities and observe testing.

The FAT Plan and FAT Procedures must be approved prior to formal execution of the FAT. The Contractor must conduct security testing as a part of the overall FAT program in accordance with the FAT Test Plan and Test Procedures, and must document all aspects of the testing in the FAT Test Report.

For each FAT test, pre-test briefings must be conducted to identify the specific test conduct, anticipated results, work-arounds and anticipated anomalies. The Contractor must conduct a post- test briefing to summarize the results of the testing. The Contractor must provide the Government with a FAT Report for approval.

CDRL T02 Test Plan - FAT
CDRL T03 Test Procedures - FAT
CDRL T04 Test Report - FAT

C.3.5.8 Government Acceptance

Government Acceptance (GA) of the system as provided by the Contractor is an activity that will occur when the following activities have occurred:

1. Factory Acceptance Testing
2. Resolution of all Category 1 and 2 PTRs, as defined in Section H.21.
3. Government approved work-around for all Category 3 PTRs
4. PCA/FCA successful conduct as defined in C.3.2.4.4
5. Government acceptance of the FCA/PCA Configuration Audit Report
6. Final delivery of the SOM, SVD, FAT Test Report, and all software and system documentation.

C.3.5.9 Installation and Integration (I&I) Test

The Contractor must conduct formal I&I testing on the AIMM hardware at each FAA site where the hardware is installed. The Contractor must also conduct formal I&I testing to confirm that the software is properly installed, operationally configured, and ready for use in Site Tests or

other Government tests, as appropriate. The Contractor must develop and deliver a Test Plan, Test Procedures and Test Report for this phase of testing.

I&I Testing will be observed by the Government.

CDRL T02 Test Plan– I&I
CDRL T03 Test Procedures – I&I
CDRL T04 Test Report– I&I

C.3.5.10 Operational Test Support

The Contractor must support demonstrations of the AIMM services for user evaluations at the William J. Hughes Technical Center (WJHTC) or at the Contractor's site. The Contractor must support Government conducted operational tests and associated activities. The Contractor must provide resources to make necessary modifications to the software to correct deficiencies identified by the Government during these tests.

C.3.5.11 Key Site Acceptance Testing (KSAT)

The Contractor must support KSAT, which is defined as the first site where the AIMM capability is installed. KSAT testing will be conducted by the Contractor at a Government specified site. The Contractor must develop and deliver a KSAT Test Plan, Test Procedures, and Test Report. The Contractor must satisfy all contractual entrance and exit criteria as documented in the KSAT Test Plan. Any requirement that could not be satisfied at the FAT must be verified during KSAT. The Contractor must complete I&I testing in advance of KSAT. The Contractor must support Government conducted testing at the Key Site, following completion of Contractor I&I and KSAT testing.

As part of KSAT, the Contractor must perform the following interface tests:

1. Demonstrate that the system can interface and operate properly with the external interfaces defined in the SSS.
2. Demonstrate that the system can interface and operate properly with required FAA systems.

As part of the KSAT, the Contractor must perform a 72-hour continuous operational field test to demonstrate compliance with SSS requirements. During this test the system must perform under design workload requirements and meet specification requirements without any unexpected aborts or hardware/ software degradation. The system must also demonstrate that it can handle failure recovery. As part of this test, the Contractor must execute a Government approved subset of FAT system tests and ensure that those results match FAT system test results. Any system failure must require a re-run of the 72-hour test once the failure is remedied.

The Contractor must conduct a formal Test Readiness Review prior to KSAT identifying the specific test conduct, anticipated results, workarounds required, and anomalies. Execution of all test procedures while testing must be conducted without breaks or interruptions. The Contractor must conduct a post-test briefing to summarize the results of the testing.

CDRL T02 Test Plan - KSAT

CDRL T03 Test Procedures - KSAT
CDRL T04 Test Report - KSAT

C.3.5.12 Site Acceptance Test (SAT)

The Contractor must conduct a SAT at each site where the AIMM capability is installed, after KSAT. The Contractor must deliver a SAT Test Plan, Test Procedures, and Test Report. The Test Plan and Test Procedures must be approved by the Government prior to formal execution of the SAT. The Contractor must conduct a formal Test Readiness Review prior to SAT.

The Government will accept the system upon successful completion of the SAT exit criteria documented in the SAT Test Plan.

CDRL T02 Test Plan - SAT
CDRL T03 Test Procedures - SAT
CDRL T04 Test Report - SAT

C.3.5.13 Test Results

The Contractor must develop and deliver, as part of each Test Report, a set of system test progress measures including the following:

1. Number of SSS requirements planned for test
2. Number of SSS requirements actually tested
3. Number of SSS requirements passed
4. Number of SSS requirements failed
5. Number and type of PTRs documented

C.3.6 Deployment

The Contractor must conduct site surveys at Government designated site(s) to identify requirements for installation of hardware required for the AIMM S2 capability. The Contractor must document all findings in a Site Survey Report, as required.

Other deployment requirements are TBD.

CDRL E11 Site Survey Report

C.3.7 Property Management

The Contractor, upon direction of the Government, must maintain and track the warranty, service, custody, location, and maintenance status for all equipment purchased under this contract.

C.3.7.1 Hardware Tracking and Reporting

The Contractor must maintain a database of all hardware purchased. The database must contain the following information for each: model number, serial number, warranty information, and license agreements, if applicable. It must also contain point of contact information for each site. The Contractor must provide a report of all hardware purchased.

C.3.7.2 Bar Code Requirement

All hardware must be marked with bar codes sufficient to clearly identify the hardware. FAA form 4650-12 must be provided with all required information for the property transfer records.

C.3.7.3 Disposition

The contractor must dispose of the old equipment using a federally approved disposition method or service.

C.3.8 Operations and Maintenance

The Contractor will be responsible for providing all software and hardware maintenance support for the duration of this contract.

C.3.8.1 AIM Systems Operations

The Contractor must provide in-service management services for systems currently managed by NAIMES II and/or transitioned to NAIMES II. The AIMM Segments will be transitioned to and be included in NAIMES Operations following their KSAT or SAT milestone.

As directed by the Government, for all systems that have been transitioned to NAIMES II, the Contractor must provide the following:

1. In-service management of test, development and operational sites for NAIMES II systems
2. 24x7 first line user support including help desk and issue tracking
3. 24x7 engineering, system administration and database administration support to include system troubleshooting, equipment replacement, technology refresh and system preventative maintenance
4. Technology transfer and transition of AIM Modernization systems from AIM management and contractors responsible for new AIM system development to the Contractor.
5. Installation and operations of multi-site AIM infrastructure including support for real-time failover, load balancing and disaster recovery.
6. Network and security services to support yearly security certifications for FAA and DoD.
7. Coordination with other FAA system and network engineers to ensure the secure operation of AIM systems and to ensure AIM systems are integrated with other NAS systems.
8. Continuity of Operations Plan (COOP) and disaster recovery
9. System monitoring
10. Network engineering
11. Maintenance of the necessary system and support documentation to effectively manage and monitor AIM systems.
12. Maintenance of the necessary support systems and processes to maintain mission essential AIM services and to provide high quality engineering and help desk support for AIM systems.

C.3.8.1.1 Remote Administrations Operations

The Contractor must operate a Government selected remote monitoring and “lights out” system administration strategy for management of the multiple NAIMES II (and AIM systems

transitioned to NAIMES II) system sites. The Contractor must integrate the remote monitoring system into the AIM-enterprise monitoring system as specified by the Government. The remote monitoring and "lights out" system administration documents for the NAIMES II systems will be provided to the Contractor who will be responsible for their maintenance.

C.3.8.1.2 Operations Documentation

To ensure quality of operations and support return to service in case of failures or disasters, the Contractor must maintain the following documentation:

1. System installation manuals
2. System user manuals
3. Network diagrams
4. Rack diagrams
5. Software/system allocation diagrams showing how logical software subsystems are allocated to physical hardware
6. Enterprise architecture artifacts, as directed
7. Continuity of Operations (COOP) plan

The documentation listed above will be provided as GFI.

The Government may specify additional documentation to be maintained as part of NAIMES II system management.

The Contractor must maintain local copies of source code, operating systems and patches at each operational site. Master copies of source code, operating systems and patches must be managed in a Contractor maintained Document Management and/or Configuration Management System.

CDRL OPS01: Operations Documentation

C.3.8.1.3 User Support

C.3.8.1.3.1 Help Desk

The Contractor must provide a 24x7 first level user support help desk. The Contractor must provide and implement user support guidelines and escalation procedures for each system as directed by the Government. The help desk must be able to perform the following activities:

1. Log support calls
2. Resolve user support questions regarding the operation of systems maintained by NAIMES II
3. Record resolution of support in the user support database
4. Verify system and system component operations

Help Desk trouble tickets must be generated and assigned a priority/severity level based on the impact to the AIM mission capability, criticality of a specific site, and the number of users affected.

C.3.8.1.3.2 User Support Management Plan

The Contractor must provide and implement a User Support Management Plan to receive, track and resolve user support requests. The User Support Management Plan must be provided in the user support section of the PMP.

The Contractor must track user support requests and resolutions utilizing a User Support Database. The system must record:

1. User name and identification
2. User contact information
3. Problem description
4. Priority
5. Affected or identified system
6. Affected or identified system sub-component
7. Affected or identified system version
8. Date of call
9. History of resolution dates, actions and interaction with the user
10. Support call status
    a. Open
    b. Closed
    c. Verified
    d. Rejected
    e. On Hold

The User Support Database must be accessible to FAA AIMM personnel and designated support Contractors. The User Support Database format must be approved by the CO and Contracting Officer's Representative (COR) before implementation.

C.3.8.2 Software Maintenance

The Contractor must develop and deliver a Software Maintenance Plan (SMP). The Contractor must document their maintenance approach in the SMP. The SMP approach and procedures must satisfy both performance and operational requirements of the AIMM S2 SSD. The Contractor must provide support sufficient to: 1) maintain AIMM S2, S3 and S4 software and, 2) maintain COTS software licenses. Software modifications that address software defects must be packaged and scheduled in software releases as approved by the Government. In advance of deployment for each software release, the Contractor must provide a presentation to the Government. The presentation material must contain:

1. The changes in the release that affect the maintenance or end users of the system.
2. The configuration information needed in order to distribute and run the software being released no later than 7 (seven) calendar days prior to the software release. Release notes must include, but not be limited to, installation procedures and special instructions a list of changes incorporated in the software with any site reports addressed by the release, and a list of identified problems. Pertinent COTS product details must be included.
3. The source code and associated files must be submitted to Government in electronic

format. The Contractor must include the change history of the source file in the source code as comments and, when applicable, document references to software development file artifacts. The specifics of what will constitute the change history will be determined in consultation with the Government.

4. For each software release, the Contractor must document the enhancements, improvements, and fixes. Each software release must include actual code size, complexity, impact on system architecture, and developmental dependencies. The release information for software problem fixes must be contained in a separate, working document.
5. For each release, the Contractor must provide a recommendation for updates to the following as-built documents: SDD, Software Version Description (SVD), System Computer Operator Manual (SCOM), SPS and System/Subsystem Installation and Configuration Manual (S/SICM).

CDRL M02 Agenda, Meeting Minutes, Action Item List, and Presentation Materials
CDRL E12 Software Maintenance Plan (SMP)

C.3.9 End User Instruction

C.3.9.1 End User Instruction Manuals

The Contractor must develop and deliver an End User Instruction Manual for each Segment. The Contractor must modify and deliver revised End User Instruction Manuals for each release, as appropriate.

CDRL E13 End User Instruction Manual

C.3.10 AIMM Engineering Services (Optional CLIN)

The Contractor must perform engineering services tasks that support engineering, analyses, design, development, deployment, maintenance, end user instruction and upgrade of the AIMM software to include integration of legacy AIM systems and other NAS operational systems as directed by the CO. The Contractor must document and deliver the results of these analyses in a Technical Report.

These engineering services may include, but are not limited to, engineering studies, prototyping designs of specific subsystems, analysis of new alternatives for a specific AIMM subsystem, and/or analysis of maintenance activities for the AIMM System and/or parts thereof.

CDRL E14 Technical Report

C.3.11 AIMM Future Segments (Optional CLIN)

At the direction of the Government, the Contractor must perform all aspects of Section C.3 of this SOW for AIMM S3 and S4. Requirements for future segments will be derived from, but not be limited to, the following: AIMM S2 SSD, approved PTRs, or approved ECPs. Work under this CLIN will be defined, negotiated and approved by the Government prior to the performance of any work.